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Processing Challenges in Shrinking HPEC Systems into Small Platforms

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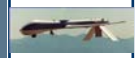
The Ultimate Performance Machine

Platforms with SWAP Constraints - UAVs

UAV	Global Hawk	Pred-ator B	Heron A	Hunter	Eagle Eye	Fire-Scout	Sentry	Dragon Warrior	Dragon Eye
Picture									
Length (ft)	44.4	36	26	22	17	23	8.4	10	3
Wingspan (ft)	116	66	54	29	17	20	12.8	9	3.8
Height (ft)	14	9.5	5.9	5.6	5.5	9.5	4	5	1
Payload Weight (lbs)	1000	800	550	250	200	200	75	35	5
Max Altitude (ft)	65k	50k	25k	15k	20k	20k	15k	4k	1.2k
Sensors	EO/IR SAR ISAR SIGINT MTS	EO/IR SAR ISAR SIGINT MTS	EO/IR SAR ISAR SIGINT MTS	EO/IR SAR ISAR MTS	EO/IR SAR ISAR SIGINT MTS	EO/IR SAR ISAR SIGINT MTS	EO/IR	EO/IR	EO/IR
Endurance (hrs)	36	36	36	10	5	4	3	3	1
Max Airspeed (kts)	320	220	120	100	220	120	100	70	35

- **UAVs height is very small; tends to lead to smaller system designs than 6U arrayed on base of fuselage/wings**
- **Payload weight is small, thus weight constrained solutions are demanded**
- **UAVs tend to fly fairly high. A consequence is that without life support environments (no man) at this altitude, conduction cooled becomes mandatory.**
- **All traditional HPEC applications are represented on all the platforms.**

Scaling the Processing